

DEVELOPMENT OF UNDERPLANTED BOTTOMLAND OAK SPECIES UNDER CHEMICALLY TREATED JUVENILE STANDS WITHIN SOUTH CAROLINA FLOODPLAINS

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Oak regeneration often fails to occupy dominant positions after crown closure in clearcut stands. Faster growing species such as American sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), and sweetgum (*Liquidambar styraciflua*) are prone to outcompete oak on more productive bottomland sites. Oak enrichment planting with overstory reduction may be a means to alter species composition in such stands. This study evaluated partial deadening of overstory stems with juvenile (<20 years of age) bottomland hardwood stands in the Savannah River floodplain, Wateree River floodplain, and a minor floodplain of Love Creek. Chemical cut stem and ring girdling with herbicide treatments were applied in the summer 2020. Trycera® (Helena Agri-Enterprises, LLC, Collierville, TN) herbicide (triclopyr acid formulation) was applied at a 50 percent solution with water. The residual stand basal area per acre was reduced to approximately 25 square feet. A nonnative, invasive spot spray of Chinese privet (*Ligustrum sinense*) and Nepalese browntop (*Microstegium vimenium*) was applied on one of the sites. Cherrybark oak (*Quercus pagoda*), nuttall oak (*Q. nuttallii*), laurel oak (*Q. laurifolia*), and willow oak (*Q. phellos*) were underplanted in late winter/early spring of 2021. Five-foot tree tubes were placed atop approximately half of the planted seedlings. No chemical herbaceous release treatments were applied to any of the areas. Planted oak seedling height measurements were taken in the spring of 2023 on the Savannah River and Love Creek sites. Seedling measurements were not taken on the Wateree River.

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